International Conference on
LAMP-2022
Laser Assisted Materials Processing
Indian Institute of Technology Kharagpur

SPARC
Scheme for Promotion of Academic and Research Collaboration

INTERNATIONAL CONFERENCE
on
LASER ASSISTED MATERIALS PROCESSING
(LAMP-2022)

August 29th-31st, 2022
Indian Institute of Technology Kharagpur, India

Organized by

Department of Metallurgical and Materials Engineering, IIT Kharagpur, India

In association with

BIT Mesra, Ranchi
INAE (New Delhi)

Sponsored by

Scheme for Promotion of Academic and Research Collaboration (SPARC), MOE, India

Website: http://www.lamp2022.iitkgp.ac.in

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About the conference

With the introduction of laser assisted additive manufacturing (LAM), an emerging and exciting possibility, whereby, finished components of complex shape, geometry, dimension, and size can be directly produced from appropriate bed or feed of powder/wire/tape using a laser beam which melts and rapidly solidifies a small volume at a time but adds on to eventually build a complete component using a computer aided design and manufacturing protocol. The overall scope is wider covering fabricating, joining, machining and surface engineering, besides fabricating a finished/semi-finished three-dimensional component. This approach is called laser assisted materials processing (LAMP).

Despite this immense possibility, the domain is still at a nascent stage where individual efforts are made for more convenient and specific components and application without making an effort to develop a comprehensive understanding of the total scope and issues involved. Furthermore, the ultimate success will be hinged on whether the properties of components by LAMP can match or better than that of conventional cast and wrought products of the same alloy. Most of the initial success translated into industrial product and application concerns only steel, ferrous alloys and superalloys and scarcely with aluminium, titanium, magnesium and other metals which hold challenges of various kinds not yet resolved completely. Hence, continued effort is warranted to extend the reach of LAMP to many more metallic alloys and even non-metallic systems like intermetallic, oxide and other useful engineering solids.

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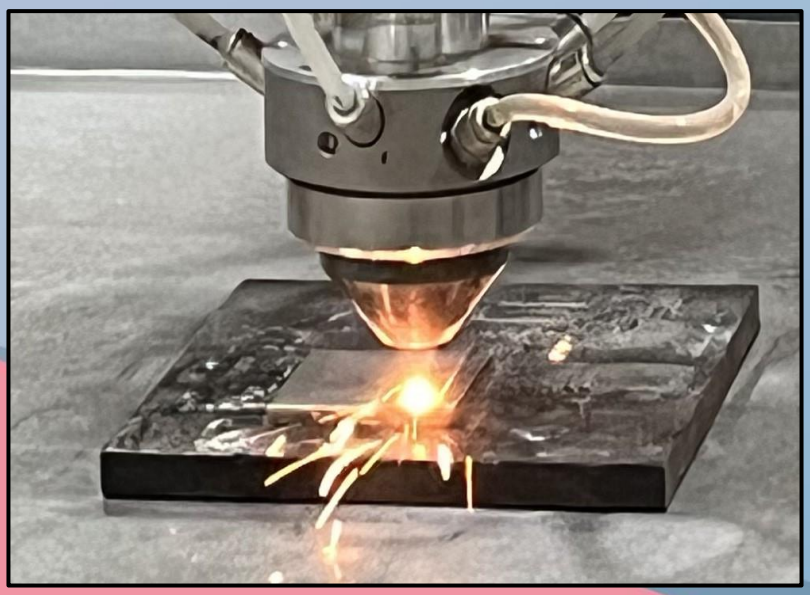

An alloy with same composition but synthesized by or processed through different routes to yield different microstructure can manifest entirely different sets of properties. This difference can be more significant under non-equilibrium processing conditions as in LAMP where the controlling parameters like heating/cooling rate, thermal gradient, solidification velocity arising out of complex interaction between independent process parameters like laser power density and interaction/pulse time on one hand, and material specific properties like melting/fusion point, density, specific heat and thermal-conductivity/diffusivity on the other hand, can drastically change from one material and processing operation to another.

The International Conference on Laser Assisted Materials Processing (LAMP), we intend to address issues related to:

(i) fundamental understanding of the subject domain, (ii) examine and review the current status of LAMP, (iii) extend the feasibility of LAMP to improve resistance to wear, corrosion and oxidation by formation of metastable microstructure and/or composition in the near-surface region, (iv) utilize LAMP to develop graded microstructure, composition and functionality, (v) utilize the knowledge to develop comprehensive understanding of microstructure-property-process parameter correlation in LAMP.

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Mode of Conference and Important Dates

The conference will be held in online mode during 29th to 31th August 2022.
Deadline for Abstract (Oral) submission (within 100 words): **24th August 2022**
Acceptance notification: **25th August 2022**
Registration deadline (for attendees and presenters): **27th August 2022**

(NO REGISTRATION FEE FOR THE CONFERENCE)

Abstract Submission

Authors are requested to submit an abstract (within 100 words) of their original and unpublished research work on or before August 20, 2022 through http://www.lamp2022.iitkgp.ac.in.
Acceptance of peer-reviewed abstracts will be intimated through email.

SELECTED SPEAKERS WILL BE INVITED TO PRESENT ARTICLES AND ALSO SUBMIT FULL LENGTH PAPER FOR PUBLICATION IN PEER-REVIEWED JOURNALS.

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Indian Institute of Technology Kharagpur (IIT Kharagpur) is a public research university established by the Govt. of India in Kharagpur, West Bengal, India.
Established in 1951, the institute is the first of the IITs to be established and is recognized as an Institute of National Importance.
The conference will be organized by Department of Metallurgical and Materials Engineering, IIT Kharagpur.

The Department of Metallurgical and Materials Engineering of IIT Kharagpur had its inception in 1954. Over the years, the Department has developed excellent expertise in the areas of Extractive and Physical Metallurgy, Manufacturing Processes, Mechanical Behaviour of Materials, Nano-Science and Technology, Modelling and Simulation, Surface Engineering, Powder Metallurgy and Environmental Degradation of Materials. The Department has provided the required manpower for sustainable growth in India's backbone of steel industry and continues to do so even today with the establishment of Steel Technology Center at IIT Kharagpur. (http://www.iitkgp.ac.in/department/MT)

Birla Institute of Technology (BIT) Mesra, the second oldest Institute of Technology in independent India, founded in 1955 by the visionary industrialist and philanthropist Mr. B.M. Birla.
BIT Mesra is located in Ranchi, the capital of the State of Jharkhand, the mineral hub and abode of serene beauty of natural forests, mountains and waterfalls.

In more than six decades of its glorious existence, this Institute, recognized by the University Grants Commission (UGC) as a deemed to be University in 1986 under section 3 of the UGC Act 1956, has emerged as one of the top most self-financed or private Engineering Institution catering to both traditional engineering disciplines and emerging technological domains with firm foundation in fundamental sciences and orientation toward modern innovations and applications. (https://www.bitmesra.ac.in/)

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